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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,957	01/09/2002	David W. Boyd	10017016-1	6391

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

HO, TUAN V

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/043,957

Applicant(s)

BOYD, DAVID W.

Examiner

Tuan V. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 and 20-30 is/are allowed.
- 6) ☒ Claim(s) 16 is/are rejected.
- 7) ☒ Claim(s) 17-29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01092002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US 6,552,744) in view of Koide (US 6,711,284).

Chen discloses in Fig. 1 a VR camera that comprises the camera comprising a data processing system (VR camera 12 comprises processor 19 including program code storage 24 where VR camera 12 is used to create a digital panoramic images (col. 2, line 44-65 and col. 3 lines 1-25), and digital representation of a panoramic photograph (digitized version of the image, col. 3, line 5), except for the data processing system programmed to remove camera tilt distortion.

Chen does not disclose any processing system that removes tilt distortion from a digital representation. However, Koide discloses in Fig. 4 a camera system that can use a computer that is programmed to remove tilt distortion from panoramic images

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taken by a digital camera, col. 6, lines 4-45 and col. 9, lines 15-24). As a result, a distorted figure is corrected in order to provide more accuracy to measures of the images (col. 6, lines 33-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the computer processor of Chen in the same fashion as disclosed by Koide so as to remove tilt distortion caused by the orientations of VR camera 12 and thereby to improve the accuracy of measuring when panoramic images to be taken by the camera.

3. Claims 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 1-15 and 20-30 are allowed.

The prior art of record fails to suggest or disclose:

With regard to claim 1, a method for removing camera tilt distortion from a panoramic photograph comprising the steps of establishing a correspondence between pixel locations in a rectified second digital representation of the photograph and pixel locations in the first digital representation; and

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copying pixel data from pixel locations in the first digital representation to the corresponding pixel locations in the second digital representation.

With regard to claim 12, a data processing system for removing camera tilt distortion from a panoramic photograph comprising program means for establishing a correspondence between pixel locations in a rectified second digital representation of the photograph and pixel locations in the first digital representation; and program means for copying pixel information from the locations in the first digital representation to the pixel locations in the second rectified digital representation.

With regard to claim 20, a computer programmed to remove camera tilt distortion from a digital representation of a panoramic photograph comprising: program means for establishing a correspondence between pixel locations in a rectified second digital representation of the photograph and pixel locations in the first digital representation; and program means for copying pixel data from pixel locations in the first digital representation to the corresponding pixel locations in the second digital representation.

With regard to claim 22, a computer-readable storage medium containing a program for removing camera tilt distortion from a

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panoramic photograph, the photograph comprising program means for mapping pixel locations in a rectified second digital representation of the photograph to corresponding pixel locations in the first digital representation; and program means for copying pixel data from pixel locations in the first digital representation to the corresponding pixel locations in the second digital representation.

With regard to claim 23, a method for correcting distortion induced by camera tilt in a panoramic photograph comprising determining locations in a rectified second digital representation of the photograph where objects in the viewing directions should appear, and determining corresponding locations in a first digital representation of the photograph the objects do appear; and transferring pixel data from locations in the first digital representation to the corresponding locations in the second digital representation.

With regard to claim 27, a method for correcting distortion induced by camera tilt in a panoramic photograph comprising determining locations in the first digital representation of the photograph where objects in the viewing directions appear; and determining corresponding locations in a second rectified digital representation of the photograph where the objects should appear; and transferring pixel data from locations in the

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first digital representation to the corresponding locations in the second digital representation.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dill (US 5,097,325) discloses a circular scanning system that can provide a panoramic images.

Girard et al (US 6,144,406) discloses an electronic panoramic camera that can provide a panoramic image bu rotating the camera.

Martin et al (US 5,764,276) discloses a camera system that can provide panoramic image by using a wide angle lens.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUAN HO whose telephone number is (571) 272-7365. The examiner can normally be reached on Mon-Fri from 7AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service whose telephone number is (571) 272-2600.



TUAN HO

Primary Examiner

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